

Amendment  
Serial No. 10/634,700

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Docket 5000-1-438

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IN THE CLAIMS:

*Please amend the claims as follows:*

1. (Currently Amended) A method for transmitting security data between an OLT (Optical Line Termination) and a destination user independently of a physical layer in an EPON (Ethernet Passive Optical Network) system having a plurality of ONUs (Optical Network Units) connected to a plurality of users and the OLT, the method comprising the steps of:

a) creating an Ethernet transmission frame including a logical link comprising an exclusive private link in a point-to-multipoint EPON system comprising the OLT and a plurality of ONU's connected to the OLT, said Ethernet transmission frame comprising a data field having encrypted security data, a key information field for storing key information used for decrypting the encrypted security data of the data field, and said transmission frame further comprising a security frame providing an indication that security data is being transmitted, said security frame having an ONU ID field for indicating ONU ID information identified by an ONU with the destination user and a user ID field for indicating a security ID (SID) identified by the destination user,

wherein the ONU ID field includes a group ID bit field, a logical link ID field, and a security ID field for association with the logical link ID field to provide a group ID for a plurality of management entities controlled by a single ONU, and wherein a variety of classes are provided according to a total number of security IDs of said security ID field controlled by the management entity; and

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b) transmitting the Ethernet transmission frame to a destination user independently of a-an environment of a physical (PHY) layer in the EPON system to a destination user.

2. (Original) The method as set forth in claim 1, wherein the security frame further includes a designator field for storing information of a group of the ONUs and the users.

3. (Original) The method as set forth in claim 1, wherein the security frame further includes a MDF (Management Defined Field) for storing MIB (Management Information Base) information and associated protocol information.

4. (Original) The method as set forth in claim 1, further comprising the step of:  
c) transmitting the transmission frame to the users connected to the ONUs for identifying the ONU ID field contained in the security frame of the transmitted frame.

5. (Original) The method as set forth in claim 1, further comprising the steps of:  
selecting at least one user who can identify contents of the ONU ID field contained in the security frame from among the plurality of users connected to the ONUs for identifying the ONU ID field, and transmitting the transmission frame to the selected user.